

APPENDIX A
1996 U.S.G.S. WATER QUALITY DATA
1999 NDEP FIELD NOTES AND ANALYTICAL RESULTS

Field Screening of Water Quality, Bottom Sediment, and Biota Associated with Irrigation Drainage In and Near Walker River Indian Reservation, Nevada, 1994-95

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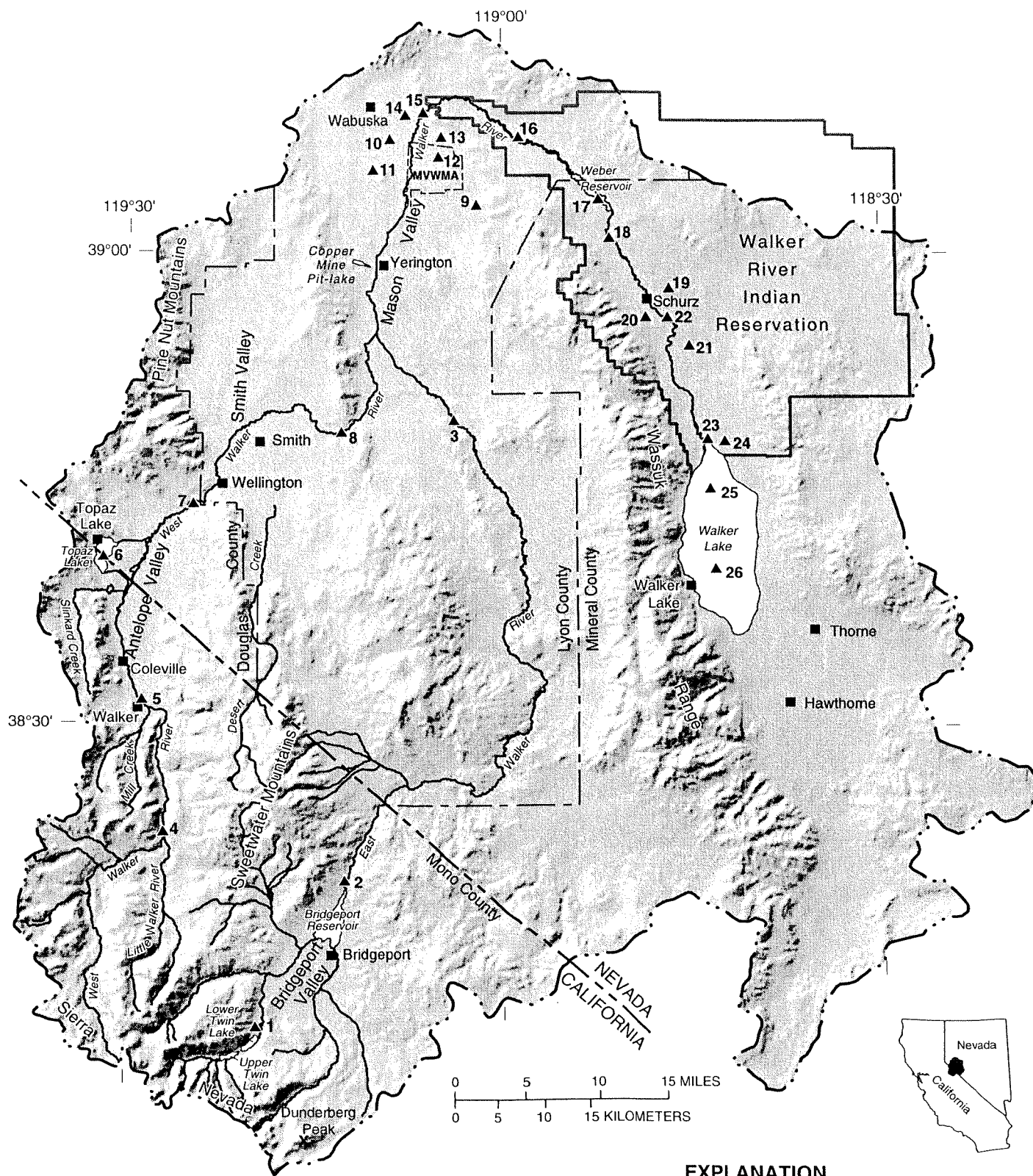
U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 96-4214

U.S. Geological Survey
U.S. Fish and Wildlife Service
Bureau of Indian Affairs and
Bureau of Reclamation



Carson City, Nevada
1996



Base from U.S. Geological Survey digital elevation data, 1:250,000, 1987, and digital data, 1:100,000, 1979-85; Universal Transverse Mercator projection, Zone 11. Shaded-relief base from 1:250,000-scale Digital Elevation Model; sun illumination from northwest at 30 degrees above horizon.

EXPLANATION

- · — Basin boundary
- ▲ 4 Sampling site—Number corresponds to table 2
- MVWMA Mason Valley Wildlife Management Area

Figure 1. Location of sampling sites in Walker River Basin, Nevada and California, 1994-95.

Table 7. Field measurements of physical properties and chemical constituents in surface-water samples from Walker River Basin, Nevada and California, 1994-95

[Abbreviations: ft³/s, cubic foot per second; μ S/cm, microsiemens per centimeter at 25 degrees Celsius; °C, degree Celsius; mg/L, milligram per liter; --, no data available; <, less than]

Site no. (fig. 1)	Date	Discharge, instantaneous (ft ³ /s)	Specific conductance (μ S/cm)	pH (standard units)	Water temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Background Area							
1	06-23-94	^a 89	54	7.8	16.0	7.9	104
2	06-23-94	^a 127	230	8.6	19.0	6.4	87
3	06-28-94	75	276	8.2	25.0	7.2	103
4	06-24-94	^a 242	56	7.7	10.0	9.0	101
5	06-24-94	^a 254	61	7.7	14.0	8.3	99
6	07-26-94	--	151	6.9	22.5	8.9	122
7	06-29-94	238	168	8.9	23.5	8.1	114
8	06-29-94	120	250	8.1	19.0	7.5	96
Mason Valley							
9	06-22-94	.04	250	8.2	24.0	6.6	93
10	06-15-94	1.5	401	8.5	18.0	10.4	130
11	06-13-94	.17	521	8.5	20.0	12.8	167
12	06-15-94	--	660	8.7	24.5	--	--
13	06-14-94	.04	739	8.5	23.5	14.0	196
14	06-13-94	2.6	438	8.6	23.5	9.1	128
15	06-14-94	29	338	8.1	16.0	8.1	98
Walker River Indian Reservation							
16	07-21-94	20	292	8.1	26.0	8.7	127
17	07-28-94	--	487	8.4	28.0	5.3	80
18	06-16-94	61	487	8.8	23.0	9.2	126
19	06-16-94	.05	483	8.5	17.5	8.3	101
	08-15-95	.3	187	8.1	20.0	8.7	113
20	07-25-94	.01	498	9.0	29.5	15.7	234
	08-15-95	<.01	204	7.8	17.0	4.9	60
21	06-17-94	.02	489	8.2	21.0	--	--
22	07-15-94	<.01	927	7.6	23.0	--	--
	08-15-95	150	270	8.0	22.0	6.5	88
23	08-31-94	.69	2,310	9.0	24.0	7.2	100
	08-14-95	60	328	7.4	22.5	7.1	96
24	08-31-94	.06	1,890	9.2	21.5	--	--
Walker Lake							
25	07-29-94	--	19,300	9.2	24.0	6.1	91
26	07-29-94	--	19,300	9.2	17.0	3.0	39

^a Discharge determined from stage-discharge relation for established USGS stream-gaging station.

Table 8. Water hardness and concentrations of major dissolved chemical constituents in surface-water samples from Walker River Basin, Nevada and California, 1994-95

[Abbreviations: mg/L, milligram per liter; °C, degree Celsius]

Site no. (fig. 1)	Date	Hardness (mg/L as CaCO ₃)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Alkalinity (mg/L as CaCO ₃)	Bicarbonate (mg/L as HCO ₃)	Carbonate (mg/L as CO ₃)	Sulfate, dissolved (mg/L as SO ₄)	Chloride, dissolved (mg/L as Cl)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO ₂)	Solids, dissolved, residue at 180°C (mg/L)
Reference Area														
1	06-23-94	21	7.3	0.7	2.0	0.6	21	25	<1	4.8	0.4	0.2	5.0	40
2	06-23-94	71	21	4.5	19	3.5	92	110	9	16	3.2	.3	16	151
3	06-28-94	85	25	5.3	22	4.2	106	129	<1	23	4.4	.4	17	173
4	06-24-94	18	5.3	1.2	4.3	.5	24	29	<1	2.6	.9	<.1	7.4	35
5	06-24-94	20	5.8	1.2	4.6	.6	25	30	<1	2.8	1.6	.1	8.5	34
6	07-26-94	47	13	3.5	11	1.9	66	80	<1	4.9	4.9	.3	2.5	84
7	06-29-94	47	13	3.6	14	1.8	63	67	5	8.0	7.1	.4	2.8	93
8	06-29-94	69	19	5.2	23	2.9	95	116	<1	18	9.2	.5	7.8	146
Mason Valley														
9	06-22-94	66	19	4.5	21	3.3	90	110	<1	17	8.8	.5	7.1	136
10	06-15-94	120	40	5.8	32	5.8	108	127	2	72	12	.6	13	268
11	06-13-94	160	45	11	50	6.0	200	210	17	56	17	.7	30	348
12	06-15-94	180	51	12	86	11	318	329	29	22	16	2.2	30	476
13	06-14-94	230	70	14	76	8.8	210	242	7	130	25	1.5	23	514
14	06-13-94	97	28	6.6	54	8.3	140	171	12	54	17	1.1	27	302
15	06-14-94	100	29	7.1	32	3.5	132	161	<1	31	12	.6	16	170
Walker River Indian Reservation														
16	07-21-94	82	23	5.9	29	3.9	104	127	<1	23	10	.5	12	158
17	07-28-94	130	38	9.0	48	6.1	174	198	7	44	17	.9	16	296
18	06-16-94	140	40	9.5	50	5.7	176	209	12	51	17	.8	18	314
19	06-16-94	140	41	9.8	51	5.5	176	205	5	52	18	.8	18	312
20	08-15-95	59	17	3.9	15	2.7	74	90	<1	12	4.7	.3	15	121
20	07-25-94	140	39	9.7	56	6.1	178	190	13	48	18	.8	21	300
20	08-15-95	64	19	4.1	17	2.9	80	98	<1	13	5.2	.3	16	122
21	06-17-94	140	41	9.7	50	6.1	175	214	<1	51	17	.8	18	308
22	07-15-94	240	66	18	110	8.4	326	398	<1	110	34	.8	36	574
22	08-15-95	86	25	5.7	22	3.5	104	127	<1	20	7.2	.3	20	157
23	08-31-94	80	17	9.0	510	20	456	468	43	320	230	5.0	54	1,450
23	08-14-95	91	26	6.4	30	4.3	105	130	<1	40	10	.4	19	177
24	08-31-94	48	10	5.6	380	20	^a 414	(a)	(a)	290	150	3.2	40	1,180
Walker Lake														
25	07-29-94	720	8.6	170	4,700	220	3,260	2,030	960	3,100	3,300	27	.5	13,600
26	07-29-94	730	8.4	170	4,100	210	3,120	2,440	672	3,000	3,200	26	.8	13,300

^a Laboratory determination of alkalinity only—field determinations not made.

WATER SAMPLING RECORD

GPS Unit: #

GPS Datapoint ID: 008

Project: Anaconda/Yerington

File No.: Div 50/ A-17

Weather Conditions: Clear, Sunny Temp 60°F

Sampling Date: 11/16/99

Analytical Lab: US-EPA R-9 Laboratory

Location: Wabaska Drain #1

[illegible]

WATER SAMPLING RECORD

GPS Unit:

14

GPS Datapoint ID:

009

Project: Anaconda/Yerington

File No.: Div 50/ A-17

Weather Conditions:

Sampling Date:

Analytical Lab: US-EPA R-9 Laboratory

Location: WABUSKA DRAIN #2

11/16/99

US-EPA R-9 Laboratory

BUSKA DRAUL #2

[illegible]

Project: Anaconda/Yerington

File No.: Div 50/ A-17

File No.: Div 50/A-17
Weather Conditions: Sunny, Clear Temp 62°F

Sampling Date: 11/16/99

Analytical Lab: US-EPA R-9 Laboratory

Location: WABUSKA DRAIN # 3

[illegible]

WATER SAMPLING RECORD

Weather Conditions:

Location: ~~WABUSKA DRAIN~~ #4

[illegible]

• Sample ID = Media / Sampling Point ID / Site #

MEDIA	SAMPLING POINT ID	SITE #
W	SB	001
water	MW	002
	LS	003
S	LY	004
soil	SW	etc.
	DW	
	WS	
	PB	
	Soil Boring	
	Monitoring Well	
	Leachate Sample	
	Lysimeter	
	Surface Water	
	Domestic Well	
	Water Supply	
	Pump-back Well	



Sampling Team: QA, KES, CR

Samplers: 2A

Signature:

Date:

Reviewed by:

Date:

55/71/11

EPA REGION 9 LABORATORY-RICHMOND, CA
SUMMARY OF ANALYTICAL RESULTS

Case Number: R00S09
 Site: ANACONDA COPPER MINE
 SDG: 99321A
 Date: 12/20/99

Analysis: Metals
 Matrix: Water

Sample No.	N/A	WDW-007	11 ARDEN	N/A	WWSW-008	WBSW-009	N/A	WSW-010	N/A	WSW-011	N/A	WWSW-014	PERMITS
Sample I.D.	AB25556	11/15/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	MANI
Date of Collection	11/15/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	11/16/99	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Analyte	Result	Q	Com	Result	Q	Com	Result	Q	Com	Result	Q	Com	Com
Aluminum (200.7)	200	U		200	U		200			26000		200	U
Antimony (200.8)	5	U		5	U		5	U		5	U	5	U
Arsenic (200.8)	20	U		10	J	A	10			100		20	U
Barium (200.8)	74			66			71			1100		61	J
Beryllium (200.7)	5	U		5	U		5	U		5	U	5	U
Boron (200.7)	200			500			600			1100		300	
Cadmium (200.8)	5	U		5	U		5	U		4		5	U
Calcium (200.7)	91000			48000			56000			200000		37000	
Chromium (200.7)	10	U		10	U		10	U		20		10	U
Cobalt (200.8)	5	U		5	U		5	U		43		5	U
Copper (200.8)	5	U		3	J	A	5			170		12	
Iron (200.7)	100	U		200			300			30000		100	U
Lead (200.8)	5	U		5	U		5	U		18		5	U
Magnesium (200.7)	15000			11000			13000			27000		8700	
Manganese (200.8)	5	U		230			140			2700		5	U
Mercury (245.1)	0.2	U		0.2	U		0.2	U		0.1		0.2	U
Molybdenum (200.8)	9			11			14			11		5	U
Nickel (200.7)	50	U		50	U		50	U		30		50	U
Potassium (200.7)	5000	U		4000	J	A	5000			20000		4000	J
Selenium (200.9)	10	U		50	U	B	10	U		50	U	10	U
Silver (200.8)	5	U		5	U		5	U		5	U	5	U
Sodium (200.7)	45000			60000			77000			190000		40000	
Thallium (200.8)	5	U		5	U		5	U		5	U	5	U
Vanadium (200.7)	20	U		20	U		20	U		190		20	U
Zinc (200.8)	70			20	U		20	U		350		20	U

Com - Comments refer to the corresponding section in the report narrative for each letter.

N/A - Not Applicable.

N/R - Not Required.

Q - Refer to data qualifiers.

J - The parameter was analyzed for, but was not detected; The associated value is the sample detection limit, adjusted for dilution, if any.

I - The associated value is an estimated quantity.